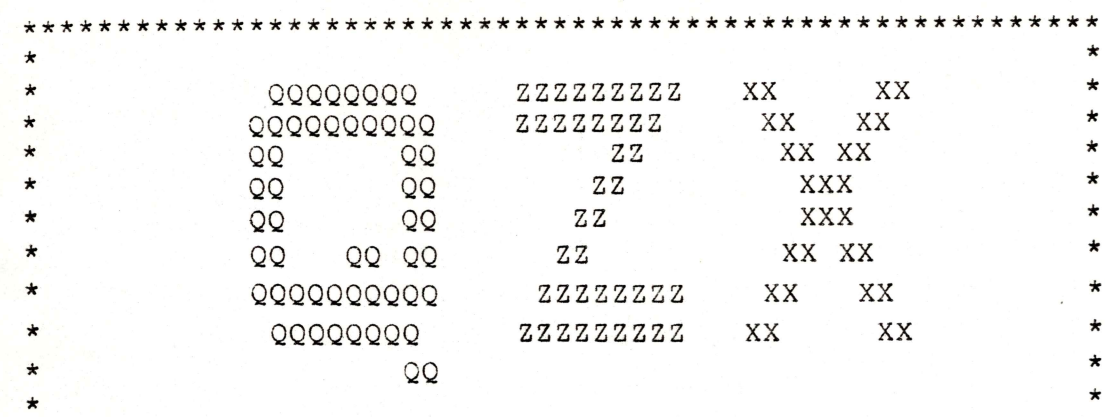

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Alex F. Burr,K5XY
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Ambrose 'Bo' Barry,W4GHV/5
Editor

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DX Heading Program

by

Roy Lawrence, W1EFK

Here's a rather nice program that allows you to find the proper beam antenna heading for contact with your foreign friends! It even tells you how far away they are in case you have the urge to travel. I think it is a rather nice program and we are very glad Roy-W1EFK sent it to us. Here are his comments on how to run it:

DON'T use "SAVE", "RUN", "CLEAR", or start a new listing, unless you want/intend to clear out ALL the prefix data stored. DO use the menu when displayed or use GOTO 6 to resume if stopped. To change to your local lat. & long. exit via menu option 4, LIST 4200, then change lines 4211 & 4212 to your latitude and lines 4224 & 4225 to your longitude, then enter GOTO 6. To save a new version with added data, etc, exit via option 4, prepare your recorder to record, then hit C. A new copy will then be recorded. Another comment- listing of the prefixes only shows the first 60. Resolution of this quirk is being worked on. The data for over 200 countries is stored with the program, the data being obtained from the 1982 ARRL Ant. Handbook. It takes over 5 minutes to load and it is for a ZX81/TS1000 with 16K. Following is a typical printout and the listing.

Typical Printout

```
      ADD ITEM TO INVENTORY
**********************************
WHEN YOU WISH TO END NEW ENTRIES
 TYPE"RETURN"

IF"S/???"APPEARS IN LOWER LEFT C
ORNER TYPE "C"TO CONTINUE

NO.   PREFIX      LAT.      LONG
1     A2          -22       -25
2     A3          -21       175
3     A4X         30.5      -59
4     A5          28        -90
5     A6X         25.3      -55.3
6     A7X         25.3      -51.5
7     A9X         26        -50.5
8     AP          25        -67
9     BV          25        -122
10    BY          33.5      -114.3
11    CO          12.5      -1.5
12    CS          13        17
*******BEARING IS:*******
UK6   Australia   COUNTRY
252.3             DEGREES
72.3              LONG PATH
******THE DISTANCE IS:******
18165             KILOMETERS
9809              NAUTICAL MILES
11287             STATUATE MILES
```

```
*******BEARING IS:*******
UU  India         COUNTRY
20.3              DEGREES
200.3             LONG PATH
******THE DISTANCE IS:******
13971             KILOMETERS
7544              NAUTICAL MILES
8681              STATUATE MILES


*******BEARING IS:*******
ET  Ethiopia      COUNTRY
52.9              DEGREES
242.9             LONG PATH
******THE DISTANCE IS:******
12308             KILOMETERS
6646              NAUTICAL MILES
```

DXCC Program

by

R.J. Lees,W3ZQN

This program, useful for keeping track of your DXCC countries worked, was submitted in such an excellent form that all we had to do is 'shrink it and shoot it'. It starts on the next convenient page. For you 'non-hams' it could be easily modified for other uses.

Roster-6 Program

by

Bob O'Leary,KQ2F

This program, useful for keeping track of names and callsigns, sorted by callsigns , was submitted in such an excellent form that all we had to do is 'shrink it and shoot it'. It starts on the next convenient page. For you 'non-hams' it could be easily modified for other uses.

Satellite Tracking Program

by

Kenneth Karki,WN7CSI

These two simple programs were also 'shrunk to fit' and saved hours of typing! They start on the next convenient page. You 'non-hams' may be able to modify them to track the Big Dipper or the Space Shuttle!

```
  6 PRINT TAB 7
"***************
  7 PRINT TAB 5
"DXCC-BEARINGS-
DISTANCE"
  9 PRINT TAB 7
"***************
 15 PRINT
 20 PRINT "DO Y
U WANT TO:"
 25 PRINT
 30 PRINT TAB 2
"1)START A NEW
LIST?"
 40 PRINT TAB 2
"2)SEARCH FOR A
 COUNTRY?"
 70 PRINT TAB 2
"3)ADD NEW COUN
RY?"
 86 PRINT TAB 2
"4)EXIT PROGRAM
"
 92 PRINT "ENTE
 YOUR CHOICE,1-
."
 96 INPUT A
 99 CLS
100 IF A=1 THEN
GOTO 300
110 IF A=2 THEN
GOTO 3000
130 IF A=3 THEN
GOTO 900
155 IF A=4 THEN
GOTO 2000
160 GOTO 90
300 PRINT TAB 3
"START A LIST"
301 PRINT "****
**************
***********"
302 PRINT
304 PRINT "HOW
MANY ITEMS ARE T
O BE LISTED?"
305 DIM I$(325,
1)
307 DIM Q(325)
308 DIM R(325)
310 INPUT N
 315 CLS
 322 PRINT
 324 PRINT "ITEM
"
 326 PRINT TAB 1
;"NO."
 332 FOR B=1 TO
325
 334 PRINT TAB 2
;B;" ";
 340 PRINT "PREF
IX?"
 350 INPUT I$(B)
 355 PRINT I$(B)
 360 PRINT TAB 5
;"LAT?"
 361 INPUT Q(B)
 362 PRINT Q(B)
 365 PRINT TAB 5
;"LONG.?"
 366 INPUT R(B)
 367 PRINT R(B)
 370 LET X=B
 375 IF X=N THEN
GOTO 390
 380 NEXT B
 390 CLS
 400 PRINT "IF""
5/???""APPEARS I
N LOWER LEFT COR
NER TYPE ""C""TO
CONTINUE LISTING
"
 402 PRINT
 410 PRINT "NO."
;TAB 5;"PREFIX";
TAB 16;"LAT.";TA
B 24;"LONG.";
 420 FOR B=1 TO
325
 430 PRINT TAB 0
;B;TAB 4;I$(B);T
AB 16;Q(B);TAB 2
4;R(B)
 440 LET X=B
 455 IF X=N THEN
GOTO 470
 460 NEXT B
 470 PRINT
 471 PRINT "END
OF FILE"
 472 PRINT
 475 PRINT "TYPE
""1""TO RE-DO  L
IST,""2""TO RETU
RN TO START"
 480 INPUT P
 482 CLS
 485 IF P=1 THEN
GOTO 300
 490 IF P<>1 THE
N GOTO 6
 900 PRINT TAB 6
;"ADD ITEM TO IN
VENTORY"
 901 PRINT "****
**************
***********"
 902 PRINT
 903 FAST
 906 PRINT "WHEN
 YOU WISH TO END
 NEW ENTRIES TYP
E""RETURN"""
 910 PRINT
 920 PRINT "IF""
5/???""APPEARS I
N LOWER LEFT COR
NER TYPE ""C""TO
 CONTINUE"
 925 PRINT
 930 PRINT "NO."
;TAB 5;"PREFIX";
TAB 16;"LAT.";TA
B 24;"LONG";
 935 PRINT
 940 FOR B=1 TO
325
 950 PRINT TAB 0
;B;TAB 4;I$(B);T
AB 16;Q(B);TAB 2
4;R(B)
 960 LET X=B
 965 LET G=N
 970 IF B=325 TH
EN GOTO 1000
 980 IF X=N THEN
 GOTO 1040
 990 NEXT B
1000 PRINT "SORR
Y,FILE IS FULL"
1010 PRINT "TYPE
""C""TO RETURN T
O START OF PROGR
AM"
1020 STOP
1030 GOTO 6
1040 LET B=B+1
1045 LET N=B
1048 IF G=B THEN
 GOTO 1000
1050 PRINT
1060 PRINT "ITEM
 NO.";B
1070 PRINT TAB 3
;"PREFIX?";
1080 INPUT C$
1081 PRINT C$
1082 LET I$(B)=C
$
1084 IF C$="RETU
RN" THEN GOTO 11
20
1090 PRINT TAB 3
;"LAT.";TAB 3;"L
ONG."
1100 INPUT Q(B)
1101 PRINT Q(B)
1103 INPUT R(B)
1105 PRINT R(B)
1110 GOTO 1040
1120 CLS
1125 LET N=B-1
1130 GOTO 6
1500 PRINT "TYPE
""S""TO SAVE""D"
"TO DELETE ""T""
TO TERMINATE"
1520 FAST
1580 LET X=1
1590 FOR B=X TO
325
1600 IF I$(B)=""
 THEN GOTO 1710
1610 LET Y=B
1615 LET X=B
1618 LET Z=N
1620 PRINT TAB 3
;I$(B);" ";
1630 INPUT Z$
1635 PRINT Z$
1640 IF Z$="S" T
HEN GOTO 1710
1650 IF Z$="D" T
HEN GOTO 1800
1660 IF Z$="T" T
HEN GOTO 1675
1665 CLS
1670 GOTO 1520
1675 CLS
1680 GOTO 6
1710 IF B=N THEN
 GOTO 1730
1720 NEXT B
1725 PRINT
1730 PRINT
1735 PRINT "END
OF FILE"
1740 PRINT
1750 PRINT "TYPE
""1""IF YOU WISH
 TO DELETE OTHER
 ITEMS,TYPE""2""
TO RETURN TO STA
RT OF PROGRAM"
1760 INPUT W
1765 CLS
1770 IF W=1 THEN
 GOTO 1500
1780 IF W<>1 THE
N GOTO 6
1800 LET I$(B)="
"
1810 LET Q(B)=0
1812 LET R(B)=0
1815 IF N=B THEN
 GOTO 1920
1820 FOR B=Y TO
325
1830 LET I$(B)=I
$(B+1)
1835 LET Q(B)=Q(
B+1)
1836 LET R(B)=R(
B+1)
1840 IF Z=B THEN
 GOTO 1900
1850 NEXT B
1900 LET N=N-1
1908 LET B=X
1909 IF N=B THEN
 GOTO 1730
1910 GOTO 1590
1920 LET N=N-1
1930 GOTO 1730
2000 PRINT "YOU
HAVE INDICATED Y
OU WISH TO EXIT
THIS PROGRAM"
2005 PRINT
2010 PRINT "IF Y
OU HAVE MADE ANY
 CHANGES"
2012 PRINT
2013 PRINT "****
**************
**********"
2015 PRINT "*DO
NOT FORGET TO RE
-LOAD TAPE*"
2016 PRINT "****
**************
**********"
2017 PRINT
2018 PRINT "TO S
AVE THIS PROGRAM
 AS CHANGED PREP
ARE THE TAPE REC
ORDER,BEGIN RECO
RDING,AND TYPE""
C"""
2020 STOP
2030 SAVE "DX.BE
ARINGS"
2040 GOTO 6
3000 PRINT TAB 7
;"TO SEARCH FOR
A COUNTRY INTER
THE PREFIX OF TH
AT COUNTRY"
3010 PRINT "****
**************
**********"
3020 PRINT
3030 PRINT "TYPE
 PREFIX "
3035 FAST
3040 INPUT C$
3042 LET J=LEN C
$
3044 DIM M$(325,
J)
3048 FOR B=1 TO
325
3052 LET M$(B)=I
$(B)
3068 IF C$=M$(B)
 THEN GOTO 3100
3070 NEXT B
3075 PRINT
3080 PRINT "***N
OT IN LIST***"
3090 GOTO 3122
3100 PRINT
3110 PRINT "LAT.
";Q(B);,"LONG.";
R(B);
3114 PRINT
3115 PRINT TAB 5
;C$
3119 PRINT "LOCA
TED"
3120 CLS
3121 GOTO 4160
3122 PRINT
3124 PRINT
3130 PRINT "TYPE
""1""TO SEARCH A
NOTHER PREFIX,""
2""TO RETURN TO
START."
3140 INPUT U
3145 CLS
3150 IF U=1 THEN
 GOTO 3000
3160 IF U<>1 THE
N GOTO 6
4160 LET D=1
4162 LET K=111.1
1
4163 LET M=57.29
577951308238
4164 LET N=60
4165 LET S=69.04
1
4200 IF D<>1 THE
N GOTO 4230
4211 REM LAT.IS
NPR FLA.
4212 LET A=28.25
4215 LET A=A/M
4224 REM LONG.IS
 NPR FLA.
4225 LET L1=82.7
2
4230 LET L2=R(B)
4231 LET B=Q(B)
4236 LET B=B/M
4250 LET L=(L1-L
2)/M
4260 LET E=(SIN
A*SIN B)+(COS A*
COS B*COS L)
4270 LET D=-ATN
(E/SQR (1-E*E))+
1.57079
4280 LET C=(SIN
B-SIN A*E)/(COS
A*SIN D)
4290 IF C>=1 THE
N GOTO 4310
4291 IF C<=-1 TH
EN GOTO 4302
4298 LET C=-ATN
(C/SQR (1-C*C))+
1.57079
4301 GOTO 4310
4302 LET C=180/M
4303 GOTO 4310
4310 LET C=C*M
4312 IF SIN L>=0
 THEN GOTO 4320
4315 IF SIN L<=0
 THEN GOTO 4316
4316 LET C=360-C
4320 LET C=INT (
(C+.05)*10)/10
4321 LET J=C
4322 IF J<=180 T
HEN GOTO 4326
4323 IF J>=180 T
HEN GOTO 4328
4326 LET J=J+180
4327 GOTO 4330
4328 LET J=J-180
4330 PRINT "****
***BEARING IS;**
*****"
4331 PRINT
4332 PRINT C$,"C
OUNTRY"
4333 PRINT
4334 PRINT C,"DE
GREES"
4335 PRINT
4336 PRINT J,"LO
NG PATH"
4337 PRINT
4340 PRINT "****
**THE DISTANCE I
S;*******"
4345 PRINT
4350 LET X=K*D*M
4351 LET X=INT (
X+.5)
4355 PRINT X,"KI
LOMETERS"
4356 PRINT
4360 LET Y=N*D*M
4361 LET Y=INT (
Y+.5)
4375 PRINT Y,"NA
UTICAL MILES"
4376 PRINT
4380 LET Z=S*D*M
4381 LET Z=INT (
Z+.5)
4385 PRINT Z,"ST
ATUATE MILES"
4387 PRINT
4450 PRINT "ENTE
R""1""FOR ANOTHE
R BEARING""2""TO
 RETURN TO START
"
4455 INPUT U
4456 CLS
4457 IF U=1 THEN
 GOTO 3000
4458 SLOW
4459 IF U<>1 THE
N GOTO 6
```

"DXCC" PROGRAM

BY R. J. LEES, W3ZQN

APRIL, 1983

ALTHOUGH I HAVE BEEN A HAM SINCE 1954, I ALWAYS RAN QRP AND NEVER EVEN TRIED FOR WAS OR DXCC AWARDS. HOWEVER, IN AUGUST, 1980, I WENT QRO (60 WATTS IN) AND DECIDED TO TRY FOR THE AWARDS. THE SUNSPOTS WERE WITH ME. BY EARLY 1982 I HAD BOTH.

MY METHOD FOR KEEPING TRACK OF COUNTRIES WORKED AND CONFIRMED LEFT MUCH TO BE DESIRED. I WAS NEVER CERTAIN MY TOTALS WERE ACCURATE BECAUSE I WOULD SOMETIMES FORGET TO MARK DOWN NEW COUNTRIES WORKED OR QSLS RECEIVED. I FOUND MYSELF COUNTING THROUGH THE DXCC LIST FROM TIME TO TIME TO CONFIRM MY TOTALS.

THIS LED ME TO TRY A ZX-81 PROGRAM THAT WOULD KEEP TRACK OF TOTALS AND PRODUCE THEM ON DEMAND. THE RESULT OF THAT EFFORT IS DESCRIBED HERE AND IS WRITTEN ENTIRELY IN BASIC (MACHINE LANGUAGE STILL BAFFLES ME). IT WAS FIRST WRITTEN IN SEPTEMBER, 1982, AND I NAMED IT "DXCC". I OFFER IT FOR QZX READERS TO TRY.

GENERAL INFORMATION

I SET SOME CONSTRAINTS ON "DXCC" AND THESE SOMETIMES RESULTED IN COMPROMISES. FOR EXAMPLE, I WANTED ALL DATA RELATED TO A GIVEN COUNTRY TO FIT ON ONE LINE OF THE TV SCREEN (32 CHARACTERS). THIS REQUIRED SOME SHORTCUTS IN NOTATION THAT WILL BECOME EVIDENT LATER ON.

THE PROGRAM HAD TO BE SELF-PROMPTING SO IT WOULD BE EASY TO USE EVEN IF DATA HAD NOT BEEN ENTERED FOR A LONG TIME. ALSO, DATA SHOULD BE EASY TO FIND AND CHANGE. MOST IMPORTANT OF ALL, THE PROGRAM AND DATA WOULD HAVE TO FIT INTO MY 16K RAM. THESE OBJECTIVES WERE MET.

SINCE IT USES MOST OF THE 16K "DXCC"S BIGGEST DISADVANTAGE IS THAT THE LOAD/SAVE TIME IS ABOUT SIX MINUTES. (IT IS BEST TO FIND SOMETHING CONSTRUCTIVE TO DO DURING LOAD/SAVE, OTHERWISE "TERMINAL BOREDOM" MAY SET IN.)

ONE CAUTION: NEVER ROUTINELY START THE PROGRAM WITH A "RUN" COMMAND. "RUN" WILL WIPE OUT ALL DATA. THIS IS THE SECOND WORST DISASTER THAT CAN BEFALL "DXCC". (THE WORST IS TO HAVE YOUR TEENAGER RECORD ROCK MUSIC OVER YOUR ONLY PROGRAM TAPE.) THE PROGRAM MUST BE STARTED BY ENTERING "GOTO 100". PROGRAMS ARE SAVED BY ENTERING "GOTO 9000". IN ORDER TO HELP AVOID THE "RUN" PITFALL, THE PROGRAM STARTS ITSELF AFTER COMPLETION OF A LOAD OR SAVE. THE ONLY TIME YOU MUST REMEMBER TO ENTER "GOTO 100" IS WHEN YOU HAVE THE LISTING ON THE SCREEN AND WANT TO GET THE PROGRAM GOING AGAIN WITHOUT FIRST EXECUTING A "SAVE".

DATA FORMAT

DATA IS STORED IN STRING ARRAY D$(340,32). D$ CONTAINS 340 ELEMENTS OF 32 CHARACTERS EACH. SINCE EACH ELEMENT CONTAINS ALL INFORMATION PERTAINING TO ONE COUNTRY, THERE IS ROOM IN THE ARRAY FOR 340 COUNTRIES, EVEN THOUGH THE CURRENT DXCC LIST CONTAINS ONLY 315. WITHIN EACH ELEMENT INFORMATION IS ARRANGED AS SHOWN BELOW:

CCCXPPPPPPPPPPPXNNNNNNNNNNNXDDDDD

C=COUNTRY NUMBER; 3 COLUMNS
STRING VARIABLE=C$(3)
P=COUNTRY PREFIX; 11 COLUMNS
STRING VARIABLE=P$(11)
N=COUNTRY NAME; 10 COLUMNS
STRING VARIABLE=N$(10)
D=WORKED/QSL DATA; 5 COLUMNS
STRING VARIABLE=I$(5)
D$=C$+SPACE+P$+SPACE+N$+SPACE+I$

EACH D$ ELEMENT IS SUBDIVIDED INTO FIELDS AS SHOWN AND EACH FIELD IS ASSIGNED ITS OWN FIXED LENGTH STRING VARIABLE FOR MANIPULATION BY THE PROGRAM.

THE COUNTRY NUMBER MUST BE FROM 1 TO 340 INCLUSIVE AND EACH COUNTRY IS ASSIGNED A UNIQUE NUMBER. THE COUNTRIES SHOULD BE ENTERED INTO THE ARRAY IN ALPHABETICAL ORDER BY PREFIX, STARTING WITH COUNTRY NUMBER 1. THIS WILL RESULT IN AN ALPHABETICAL BY PREFIX SEQUENCE WHEN PAGING THROUGH THE LIST BECAUSE PAGING PROCEEDS IN NUMERICAL ORDER.

THE PREFIX MAY CONTAIN UP TO 11 CHARACTERS. IF A PARTICULAR COUNTRY HAS SEVERAL PREFIXES SOME ABBREVIATIONS OR SHORTCUTS ARE REQUIRED. FOR INSTANCE, IN THE CASE OF WHITE R.S.S.R., THE ARRL LISTS THE PREFIXES AS "UC2,UK2A/C/I/L/O/S/V". I SHORTENED THIS TO "UC2,UK2ACIL".

SIMILARLY, THE COUNTRY NAME MUST HAVE NO MORE THAN 10 CHARACTERS. I SHORTENED "GUERNSEY AND DEPENDENCIES" AND "SAN ANDRES AND PROVIDENCIA" TO "GUERNSEY/D" AND "S ANDRES/P" RESPECTIVELY.

ONCE THE NUMBER, PREFIX AND NAME DATA IS ENTERED FOR ALL 315 COUNTRIES ON THE ARRL LIST, THIS INFORMATION NEED NEVER BE TOUCHED AGAIN UNLESS THERE ARE CHANGES TO THE ARRL LIST. HOWEVER, IT IS EASY TO DELETE PREVIOUS ENTRIES, ADD NEW ONES OR CHANGE PREFIXES/NAMES SHOULD IT BECOME NECESSARY.

INFORMATION SUBJECT TO FREQUENT CHANGE IS KEPT IN THE LAST FIVE COLUMNS OF EACH D$ ELEMENT. THE FIRST FOUR OF THESE CONTAIN THE DATE THE COUNTRY WAS WORKED IN MMYY FORMAT. (THE DAY OF THE MONTH WAS OMITTED TO CONSERVE SPACE.) THE LAST COLUMN CONTAINS QSL AND DXCC CREDIT INFORMATION AS FOLLOWS: AN EMPTY SPACE MEANS NO QSL HAS BEEN SENT OR RECEIVED AND, OF COURSE, NO DXCC CREDIT OBTAINED. AN "S" MEANS A QSL HAS BEEN SENT BUT NONE RECEIVED. "R" MEANS A QSL HAS BEEN RECEIVED BUT NOT YET SENT TO THE ARRL FOR CREDIT. A "C" MEANS CREDIT HAS BEEN OBTAINED.

DURING ROUTINE USE OF THE PROGRAM THESE LAST FIVE COLUMNS CHANGE AS COUNTRIES ARE WORKED, CONFIRMED AND CREDITED. THE PROGRAM PROVIDES ACCESS TO THIS PORTION OF THE D$ ELEMENT WITHOUT ANY RISK OF ALTERING THE PERMANENT INFORMATION STORED IN THE REST OF THE ELEMENT.

INITIAL DATA ENTRY

AFTER LOADING THE PROGRAM EXECUTE A "RUN" COMMAND. (THIS IS THE ONLY TIME YOU WILL USE "RUN". ITS USE RESERVES SPACE IN MEMORY FOR THE STRINGS.) THE SCREEN WILL SHOW THE FOLLOWING INFORMATION:

>PROGRAM TITLE, AUTHOR, DATE
>CAUTION REGARDING "RUN"
>DATA FORMAT REMINDER
>MENU OF OPTIONS:
-SEARCH FOR A COUNTRY
-REVIEW DATA BY PAGES
-TOTALS
-INPUT NEW PERMANENT DATA
-EXIT THE PROGRAM

SINCE THE PROGRAM INITIALLY CONTAINS NO DATA, ALL OPTIONS EXCEPT THE LAST TWO ARE MEANINGLESS AT THIS POINT. ENTER "I" (INPUT). THE COMPUTER WILL ASK FOR A COUNTRY NUMBER. ENTER A NUMBER FROM 1 TO 340. THE COMPUTER NEXT ASKS FOR A PREFIX. ENTER ONE UP TO 11 CHARACTERS LONG. NEXT COMES THE REQUEST FOR COUNTRY NAME (10 CHARACTERS) AND FINALLY THE DATA IN MMYYS/R/C FORMAT. IF THE COUNTRY HAS BEEN WORKED, ENTER THE MONTH (2 CHARACTERS), YEAR (2) AND WHETHER A QSL WAS (S)ENT, (R)ECEIVED OR (C)REDITED (1 CHARACTER). IF "S" OR "R" OR "C" DO NOT APPLY, LEAVE THE LAST ENTRY BLANK. IF THE COUNTRY HAS NOT BEEN WORKED, LEAVE THE LAST FIVE COLUMNS BLANK. PRESS "ENTER" TO CONTINUE.

THE COMPUTER WILL NOW PRINT THE ENTIRE D$ ELEMENT JUST ENTERED AS IT WILL APPEAR WHENEVER CALLED. TOUCHING ANY KEY (EXCEPT "BREAK") STARTS THE CYCLE AGAIN FOR THE NEXT COUNTRY NUMBER. (IF YOU FIND THAT YOU MADE A MISTAKE, JUST ENTER ALL THE DATA AGAIN FOR THE SAME COUNTRY NUMBER.) CONTINUE THIS PROCESS UNTIL ALL 315 ARRL COUNTRIES HAVE BEEN ENTERED INTO THE DATA BASE. THIS IS A TIME CONSUMING JOB BUT IT SHOULD NEVER HAVE TO BE REPEATED. IF YOU WOULD LIKE A CASSETTE COPY OF THE PROGRAM WITH ALL COUNTRIES ENTERED, SEE THE END OF THIS ARTICLE.

THE DATA BASE INPUT ROUTINE MAY BE DISCONTINUED AT ANY TIME BY ENTERING A COUNTRY NUMBER THAT IS NOT FROM 1 TO 340. I USE "0". EXITING THE ROUTINE RETURNS THE OPTION MENU TO THE SCREEN.

USING THE PROGRAM

THE MENU OF PROGRAM OPTIONS IS "DXCC"S HOME BASE. IT ALWAYS RETURNS TO THE MENU UPON EXITING ANY ROUTINE. HERE ARE DETAILS ON THE OPTIONS:

SEARCH

THIS OPTION SEARCHES FOR A PARTICULAR COUNTRY AND ALLOWS CHANGES TO THE LAST FIVE COLUMNS OF DATA. WHEN SELECTED (BY ENTERING "S") THE COMPUTER ASKS WHETHER THE SEARCH IS TO BE BY COUNTRY NUMBER (ENTER "C"), PREFIX (ENTER "P") OR NAME (ENTER "N"). DEPENDING ON WHICH METHOD IS CHOSEN, THE COMPUTER WILL NEXT ASK FOR THE PARTICULAR

COUNTRY NUMBER, PREFIX OR NAME TO BE LOCATED. ENTER IT AND THE COMPUTER WILL SEARCH ALL D$ ELEMENTS FOR A MATCH. IF NONE IS FOUND YOU ARE TOLD SO AND ASKED IF YOU WANT TO TRY AGAIN. A (N)O RESPONSE RETURNS THE OPTION MENU TO THE SCREEN, WHILE A (Y)ES PERMITS ENTRY OF ANOTHER NUMBER, PREFIX OR NAME.

IF THE SEARCH IS SUCCESSFUL THE D$ ELEMENT MATCHING THE REQUEST IS DISPLAYED ALONG WITH A QUESTION WHETHER YOU WISH TO CHANGE THE DATA (LAST FIVE COLUMNS). IF YOU ENTER (N)O YOU ARE ASKED IF YOU WANT TO SEARCH AGAIN. FOR A (Y)ES ANSWER THE D$ ELEMENT IS AGAIN DISPLAYED, BUT THIS TIME AT THE BOTTOM OF THE SCREEN ON LINE 20. COLUMNS 1 TO 5 OF LINE 21 REPEAT THE MMYY$/R/C DATA FOR THIS ELEMENT IN A POSITION DIRECTLY ABOVE THE CURSOR. ENTER THE NEW MMYY$/R/C DATA AND IT WILL REPLACE THE OLD DATA IN THIS D$ ELEMENT. ONCE YOU SAY YOU WANT TO CHANGE DATA YOU MUST ENTER ALL FIVE CHARACTERS, EVEN IF SOME REMAIN UNCHANGED. FOR EXAMPLE, IF THE EXISTING DATA IS 03833 (WORKED IN MARCH, 1983 AND QSL SENT) AND YOU HAVE NOW RECEIVED A QSL, YOU WOULD ENTER THE NEW DATA AS "0383R".

PAGE

THE PAGE OPTION IS SELECTED FROM THE MENU BY ENTERING "R". THE COMPUTER THEN ASKS AT WHAT COUNTRY NUMBER YOU WISH TO BEGIN PAGING. TO REVIEW THE ENTIRE LIST ENTER A "1". TO REVIEW THE LAST HALF OF THE LIST ENTER A NUMBER AROUND 150 AND SO ON.

THE COMPUTER WILL DISPLAY 22 COUNTRIES IN NUMERICAL ORDER STARTING AT THE ONE YOU SELECTED. TO PAGE FORWARD TOUCH THE "B" KEY. THE DISPLAY WILL THEN SHOW THE LAST COUNTRY FROM THE PREVIOUS PAGE PLUS THE NEXT 21. YOU MAY PAGE THROUGH THE ENTIRE DATA BASE IN THIS MANNER. (THE PROGRAM WILL NOT PAGE BACKWARD.) YOU MAY EXIT THIS ROUTINE BY TOUCHING ANY KEY EXCEPT "B" OR "BREAK".

TOTALS

SELECTING "T" FROM THE MENU RESULTS IN A COUNT. THIS TAKES ABOUT 20 SECONDS DURING WHICH THE SCREEN IS BLANK. THE RESULT IS DISPLAYED IN A TABLE AS FOLLOWS:

```
TOTAL COUNTRIES LISTED (315)
TOTAL COUNTRIES WORKED
TOTAL COUNTRIES NOT WORKED
QSLS SENT WITHOUT A RETURN
QSLS RECEIVED, NOT CREDITED
TOTAL DXCC CREDITS
```

TOUCHING ANY KEY (EXCEPT "BREAK") RETURNS YOU TO THE OPTION MENU.

INPUT

SELECTING "I" FROM THE MENU ALLOWS CHANGE OF THE PERMANENT DATA BASE AS WAS COVERED EARLIER UNDER "INITIAL DATA ENTRY".

EXIT

SELECTING "E" FROM THE MENU ALLOWS SAVING OR LISTING THE PROGRAM AND GIVES A REMINDER TO USE "GOTO 100" TO START THE PROGRAM AGAIN AND USE "GOTO 9000" TO SAVE THE PROGRAM ALONG WITH ALL DATA.

FINAL THOUGHTS

I HOPE OTHERS WILL TRY "DXCC" AND IMPROVE IT. MAYBE YOU CAN WORK ON DIFFERENTIATING BETWEEN PHONE AND CW AND AMONG THE VARIOUS BANDS.

FOR ANY INTERESTED, I AM WILLING TO SUPPLY A PROGRAM PACKAGE. IT WILL CONTAIN TWO COPIES OF THE PROGRAM PLUS THE NUMBER/PREFIX/NAME DATA BASE ON OPPOSITE SIDES OF A C-20 CASSETTE. INCLUDED WILL BE HARD COPIES OF THIS ARTICLE, THE PROGRAM LISTING AND THE DATA BASE. THE PRICE IS $10.00 VIA CHECK OR MONEY ORDER TO:

705 JONATHAN ROAD
KING OF PRUSSIA, PA. 19406

ORDERS VIA CHECK WILL HELD THREE WEEKS TO PERMIT THE CHECK TO CLEAR. YOUR CASSETTE WILL HAVE BEEN CHECKED FOR PROPER OPERATION ON MY SYSTEM, HOWEVER I CANNOT OFFER A REFUND IF IT FAILS TO WORK ON YOURS.

GOOD LUCK AND HAVE FUN WITH

" D X C C "

(THIS ARTICLE WAS PREPARED ON THE TIMEX/SINCLAIR 2040 PRINTER USING A PROGRAM I CALL "TYPE". IT TURNS THE COMPUTER/PRINTER INTO A FAIRLY RESPECTABLE TYPEWRITER.)

TITLE SCREEN

```
     DXCC COUNTRIES LIST
PROG. BY W3ZGN, R J LEES, 09/82
TO RUN USE "GOTO 100"
TO SAVE USE "GOTO 9000"
IF "RUN" USED, ALL DATA IS LOST

EACH DATA LINE HAS:
  COUNTRY NUMBER- 3 SPACES
          PREFIX-11
          NAME  -10
          DATA  - 5

  DATA IS MO, YR, AND DXCC CODE:
  (S)ENT/(R)ECEIVED/(C)REDITED


ENTER ROUTINE DESIRED:
  S-SEARCH (LOCATE/CHANGE DATA)
  R-REVIEW (BY PAGES)
  T-TOTALS (WORKED,CREDITED,ETC)
  I-INPUT  (CHANGE DATA BASE)
  E-EXIT   (STOP THE PROGRAM)
```

TYPICAL PAGE OF DXCC LIST

```
22  CT3       MADEIRA I   10810
23  CX        URUGUAY     09810
24  C2        NAURU
25  C3        ANDORRA     03810
26  C5        THE GAMBIA
27  C6        BAHAMA I    11810
28  C9        MOZAMBIQUE
29  DA,F,H,J-L W GERMANY    08800
30  DU        PHILIPPINE
31  D2,D3     ANGOLA
32  D4        CAPE VERDE  05810
33  D6        COMOROS
34  EA        SPAIN       02810
35  EA6       BALEARIC I  01823
36  EA8       CANARY I    11800
37  EA9       CEUTA MELI  0282R
38  EI        R IRELAND   03810
39  EL        LIBERIA     11810
40  EP        IRAN
41  ET        ETHIOPIA
42  F         FRANCE      11810
43  FB8W      CROZET I
```

TYPICAL RESULT OF TOTALS ROUTINE

```
315                 COUNTRIES LISTED

130                 WORKED

185                 NOT WORKED

18                  QSL SENT,NO RET

9                   QSL SENT AND RET

103                 DXCC CREDITED

HIT ANY KEY TO RETURN
```

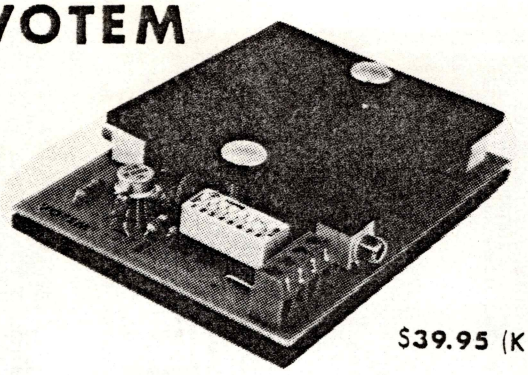
"DXCC" PROGRAM LISTING

```
  11 DIM C$(3)
  12 DIM P$(11)
  13 DIM N$(10)
  14 DIM I$(5)
  15 DIM D$(340,32)
 100 PRINT TAB 5;"DXCC COUNTRIES
 LIST"
 101 PRINT "PROG. BY W3ZGN, R J
LEES, 09/82"
 105 PRINT "TO RUN USE "GOTO 100
"
"  TO SAVE USE "GOTO 90
00"
"  IF "RUN" USED, ALL D
ATA IS LOST"
 110 PRINT ,,"EACH DATA LINE HAS
:",TAB 2;"COUNTRY NUMBER- 3 SPAC
ES",TAB 10;"PREFIX-11",TAB 10;"N
AME  -10",TAB 10;"DATA  - 5"
 120 PRINT ,," DATA IS MO, YR,
AND DXCC CODE:  (S)ENT/(R)ECEIVE
D/(C)REDITED"
 130 PRINT ,,,,"ENTER ROUTINE DE
SIRED:","  S-SEARCH (LOCATE/CHAN
GE DATA)","  R-REVIEW (BY PAGES)
","  T-TOTALS (WORKED,CREDITED,E
TC)  I-INPUT  (CHANGE DATA BASE)
","  E-EXIT   (STOP THE PROGRAM)
"
 140 GOSUB 8000
 150 IF INKEY$="S" THEN GOTO 100
0
 160 IF INKEY$="R" THEN GOTO 300
0
 170 IF INKEY$="T" THEN GOTO 400
0
 180 IF INKEY$="I" THEN GOTO 500
0
 190 IF INKEY$="E" THEN GOTO 700
0
 200 GOTO 130
1000 PRINT "SELECT SEARCH ROUTIN
E:",TAB 3;"C-BY NUMBER",,TAB 3;"
P-BY PREFIX",,TAB 3;"N-BY NAME"
1010 GOSUB 8000
1020 IF INKEY$="C" THEN GOTO 110
0
1030 IF INKEY$="P" THEN GOTO 150
0
1040 IF INKEY$="N" THEN GOTO 200
0
1050 GOTO 1000
1100 PRINT "ENTER COUNTRY NO.:"
1110 INPUT C
1120 IF D$(C,1)=" " THEN GOSUB 8
100
1130 IF INKEY$="Y" THEN GOTO 110
0
1140 IF INKEY$="N" THEN GOTO 130
0
1150 CLS
1160 PRINT D$(C)
1170 GOSUB 8000
1180 IF INKEY$="N" THEN GOTO 125
0
1190 IF INKEY$="Y" THEN GOSUB 81
00
1195 IF INKEY$="Y" THEN GOTO 110
0
1200 GOTO 130
1250 GOSUB 8500
1260 GOTO 1195
1500 PRINT "ENTER PREFIX"
1510 INPUT P$
1520 FOR C=1 TO 340
1530 IF D$(C,5 TO 15)=P$ THEN GO
TO 1600
```

SEARCH ROUTINE BY NUMBER

VOTEM

VOTEM is a complete package, consisting of the hardware and software to enable your computer to measure voltages and temperatures. VOTEM also includes circuitry that "cleans up" the tape signal for dependable LOADs. VOTEM transforms your system into a "smart" digital voltmeter and thermometer with storage capability or even a data acquisition sytem! Use VOTEM as part of a home energy-savings system and receive a tax credit.



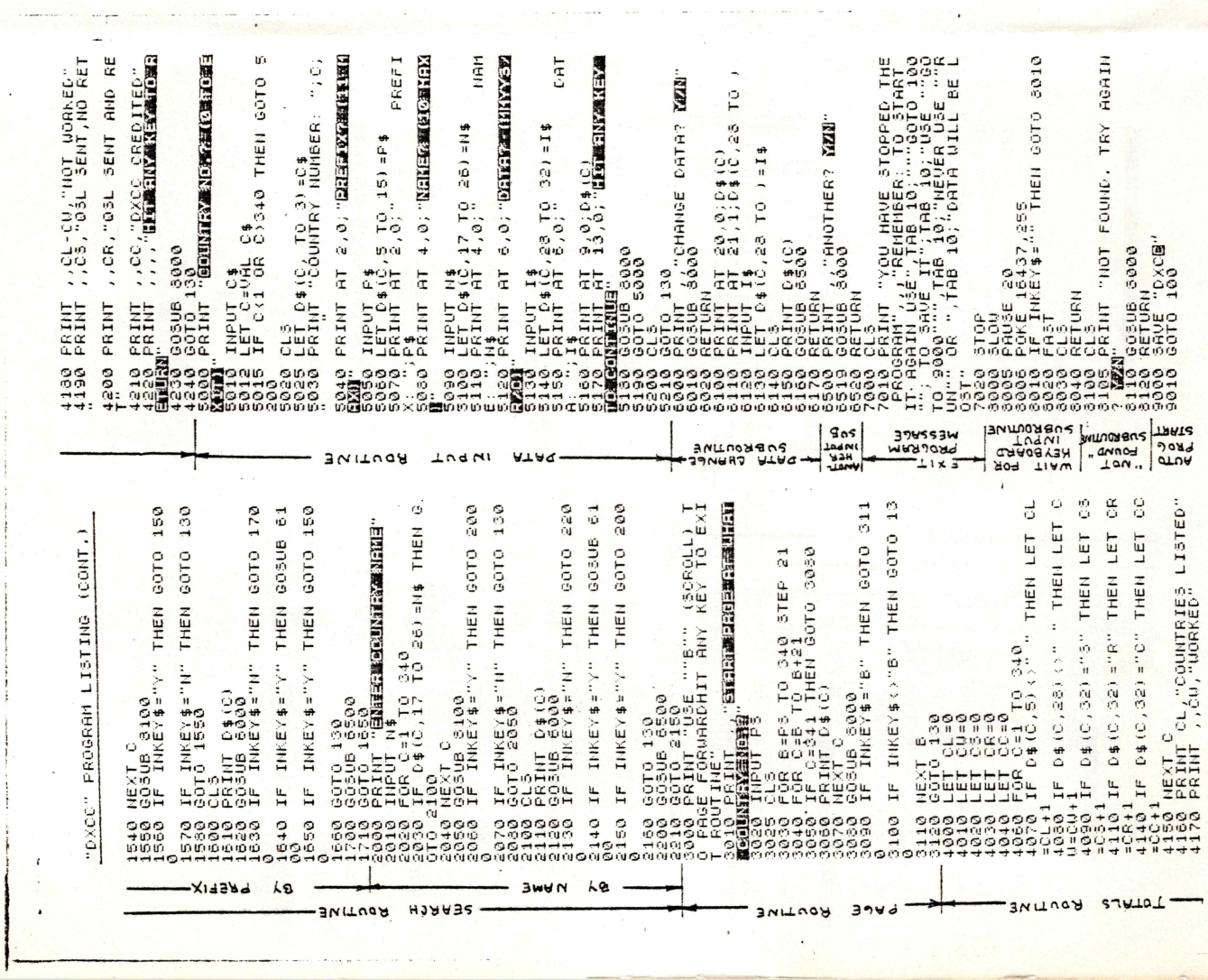
$39.95 (Kit)

THE ANALOG INTERFACE
AND TAPE-SIGNAL CONDITIONER
for the Timex/Sinclair

* Requires absolutely no modifications to computer
* Compatible with TS1000 or ZX81 with 1K to 64K memory
* Probe provided for air and liquid temprature measurements
* Voltage range of +1V is expandable with on-board resistors
* Better-than-14-bit resolution (0.00004V or 0.05 degrees)
* Schmitt trigger conditioner circuitry for tape signal.
* 35-page, easy-to-follow, comprehensive VOTEM User's Manual
  . Can be purchased alone $5 (pp) and applied to 1st VOTEM
  . Includes software for calibration and applications

Buy VOTEM kit or assembled versions $39.95 (kit) or $59.95 (asm).
Mail check or money order. Please add $3 for postage & handling.
Down East Computers \ PO Box 3096 \ Dept Z \ Greenville, NC 27834

ALSO! +++ MEMORY UPGRADE KIT +++ 6116P-3 (or equiv.) with 24-pin socket and directions for converting a ZX81 from 1K to 2K of RAM. Only $11.95 post paid.



TO: ALEX, K5XY
FROM: BOB, KQ2F, 21 KATE TERR., PISCATAWAY, N.J. 08854
FOR: APRIL QZX PUBLICATION, IF DESIRED.

"ROSTER-6"

BY: R.A. O'LEARY, KQ2F, 21 KATE TERRACE, PISCATAWAY, N.J. 08854

```
  1 REM "ROSTER-6"
  2 REM - (C) 1982 BY KQ2F
  3 REM - TO DISPLAY THE ROSTER ENTER
    GOTO 500
 10 REM - ENTER CONT COMMAND TO CONT
    DISPLAY
 20 REM - TO ADD TO THE ROSTER  ENTE
    GOTO 40
 30 REM - TO CORRECT THE ROSTER ENTER
    GOTO 500
 35 REM - TO  SAVE THE ROSTER    ENT
    GOTO 400
 37 REM - TO  LPRINT THE ROSTER  ENT
    GOTO 600
 40 REM - TO START A NEW ROSTER ENTE
    RUN
 50 LET  B=1
    LET  X=200
    DIM A$(X,4)
    DIM C$(1,2,7)
    DIM X$(X,15)
    REM - SET THE ROSTER SIZE
    PRINT "HOW MANY MEMBERS DO YOU WAN
    T ENTER?"
    INPUT N
    LET  N=N+B-1
    IF N>X THEN  GOTO 50
    REM - ENTER THE MEMBERS
    CLS
    PRINT "ENTER CALLSIGN, THEN ENTER
    NAME."
    INPUT C$(1,1)
    INPUT C$(1,2)
    LET  X$(B)=C$(1,1)+" "+C$(1,2)
    PRINT B;TAB 4;X$(B)
    IF PEEK 16442=2 THEN  SCROLL
    LET  B=B+1
    IF B<=N THEN  GOTO 120
    CLS
    PRINT "WAIT..."
    PAUSE 150
    REM - ALPHABETIZE ROSTER
    FOR K=1 TO N-1
    FOR J=1 TO N-K
    IF X$(J)<=X$(J+1) THEN  GOTO 215
    LET  T$=X$(J)
    LET  X$(J)=X$(J+1)
    LET  X$(J+1)=T$
    NEXT J
    NEXT K
    REM - PRINT THE ROSTER
    FOR I=1 TO N
    LPRINT I;TAB 4;X$(I)
    NEXT I
    GOTO 300
    SAVE "ROSTER-6"
    GOTO 300
    REM - CORRECT THE ROSTER
    LPRINT "ENTER THE NUMBER OF THE ITE
    M TO BE CORRECTED:"
    INPUT Y
    PRINT ;;Y;TAB 4;X$(Y)
    PRINT ;;"ENTER CALLSIGN, THEN ENT
    ER NAME."
    INPUT C$(1,1)
    INPUT C$(1,2)
    IF X$(Y, TO 7)=C$(1,1) THEN
    GOTO 290
    LET  X$(Y)=C$(1,1)+" "+C$(1,2)
    GOTO 175
    LET  X$(Y)=C$(1,1)+" "+C$(1,2)
    GOTO 300
    REM - PRINT OUT THE ROSTER
    LPRINT "ENTER TODAYS DATE."
    INPUT I$
    LET  P$=I$
    LET  P=USR 8291
    FOR I=1 TO INT (N/2+.5)
    LET  A$(1)=STR$ I
    LET  A$(2)=STR$ INT (N/2+I+.5)
    LET  P$=A$(1)+X$(I)+" "+A$(2)+X$(N
    +I)
    LET  P=USR 8192
    NEXT I
    GOTO 300
```

"ROSTER-6" ALLOWS YOU TO CREATE A LIST OF CALLSIGNS & NAMES WHICH ARE AUTOMATICALLY ALPHABETIZED ACCORDING TO CALLSIGN.

THE MAXIMUM SIZE OF THE ROSTER IS SET BY VARIABLE X IN LINE 25. YOUR 16K RAM IS CAPABLE OF HOLDING MUCH MORE THAN 200 LISTINGS, SINCE EACH LISTING INCLUDES 6 BYTES FOR THE CALLSIGN + 2 SPACES + 7 BYTES FOR THE NAME. BUT IF YOU MAKE X TOO LARGE, THEN IT WILL TAKE A VERY LONG TIME TO SAVE AND LOAD THE ROSTER. X=200 TAKES ABOUT 2½ MINUTES.

IF YOU WANT TO SAVE YOURSELF SOME TYPING YOU CAN LEAVE OUT THE REM STATEMENTS. LINES 3 THROUGH 18 ARE ONLY THERE TO TELL YOU HOW TO USE THE PROGRAM.

RUN WILL CLEAR THE ROSTER, SO IF YOU WANT TO START A NEW ROSTER HIT BREAK, RUN, AND ENTER. OTHERWISE, NEVER USE THE RUN COMMAND. DON'T WORRY, THE PROGRAM IS SELF STARTING.

THE ROUTINE STARTING AT LINE 600 IS WRITTEN FOR THE CAI/P40 PRINTER. IT FORMATS THE PRINTER OUTPUT INTO TWO COLUMNS OF 20 CHARACTERS EACH, INCLUDING ITEM NUMBERS. RE-WRITE THIS ROUTINE TO SUIT YOUR PRINTER. IF YOU DO NOT HAVE A PRINTER, THEN DELETE THIS ROUTINE.

```
  5  REM "SATELLITE"
 10  PRINT "SATELLITE PROGRAM REQUIRES THE
FOLLOWING INPUTS:"
 20  PRINT "  DATE"
 30  PRINT "  SATELLITE NAME"
 40  PRINT "  SATELLITE NO."
 50  PRINT "  HOUR OF EQUATOR   CROSSING"
 60  PRINT "  MINUTE OF EQUATOR   CROSSING"
 70  PRINT "  LONGTITUDE OF EQUATOR CROSSING"
 80  PAUSE 3ØØ
 90  CLS
100  PRINT "DATE:",
110  INPUT D$
120  PRINT D$
130  PRINT "SATELLITE NAME:",
140  INPUT S$
150  PRINT S$
160  PRINT "SATELLITE NO.:",
170  INPUT N
180  PRINT N
190  PRINT "HOUR:",
200  INPUT H
210  PRINT H
220  PRINT "MINUTE:",
230  INPUT M
240  PRINT M
250  PRINT "LONGTITUDE:",
260  INPUT L
270  PRINT L
280  PRINT
290  PRINT "TIME","LONGTITUDE"
300  IF S$="RS" THEN GOSUB 500
310  IF L> * AND L< *  OR L>* AND L< * THEN
PRINT H; TAB 3; M, L
320  LET H=H+1
330  LET M=M+43
340  IF M>59 THEN LET H=H+1
350  IF M>59 THEN LET M=M-60
360  IF H<24 THEN GOTO 400
370  IF H>23 THEN PRINT "PRESS C TO CONTINUE"
380  INPUT C$
390  IF C$="C" THEN GOTO 90
400  LET L=L+26
410  IF L>360 THEN LET L=L-360
420  GOTO 310
500  IF L> * AND L< *  OR L> *  AND L< *
THEN PRINT H;TAB 3; M,L
510  LET H=H+1
520  LET M=M+59
530  IF M>59 THEN LET H=H+1
540  IF M>59 THEN LET M=M-60
550  IF H<24 THEN GOTO 590
560  IF H>23 THEN PRINT "PRESS C TO CONTINUE"
570  INPUT C$
580  IF C$="C" THEN GOTO 90
590  LET L=L+30
600  IF L>360 THEN LET L=L-360
610  GOTO 500
```

FROM:
WN7CSI
Kenneth Karki
W. 9602 #10 Old Charles Rd.
Nine Mile Falls, Wa 99026

NOTES ON PROGRAM:

Requires more than 1K RAM.
On lines 310 and 500 replace the * with longitude figures based on your location.
Line 310 is for Oscar 8.
The 1st figure is your longitude minus 50.
The 2nd figure is your longitude plus 25.
The 3rd figure is your longitude plus 150.
The 4th figure is your longitude plus 225.
Line 500 is for RS satellites.
The 1st figure is your longitude minus 27.
The 2nd figure is your longitude plus 50.
The 3rd figure is your longitude plus 123.
The 4th figure is your longitude plus 200.
The above figures are used if you only want the orbits that can be worked from your area.
If you want all orbits for the day change lines 310 and 500 to read:
PRINT H; TAB 3;M,L

```
  5  REM "SATELLITE"
 10  CLS
 20  PRINT "DATE","SAT NAME"
 30  INPUT D$
 40  INPUT S$
 50  PRINT D$,S$
 60  PRINT "SAT NO","LONG"
 70  INPUT N
 80  INPUT L
 90  PRINT N, L
100  PRINT "HOUR","MIN"
120  INPUT H
130  INPUT M
140  PRINT H,M
150  CLS
160  PRINT "TIME","LONG"
170  PRINT
180  IF L>** AND L<** OR L>** AND L<**
     THEN PRINT H;TAB 3;M,L
190  LET H=H+1
200  IF S$="OSCAR" THEN LET M=M+43
210  IF S$="RS" THEN LET M=M+59
220  IF M>59 THEN LET H=H+1
230  IF M>59 THEN LET M=M-60
240  IF H<24THEN GOTO 280
250  IF H>23 THEN PRINT "PRESS C TO
     CONTINUE"
260  INPUT C$
270  IF C$="C" THEN GOTO 10
280  IF S$="OSCAR" THEN LET L=L+26
290  IF S$="RS" THEN LET L=L+30
300  IF L>360 THEN LET L=L-360
310  GOTO 180
```

NOTES ON PROGRAM:

Will fit in 1K RAM
On line 180 replace ** with longitude figures based on your location.
The 1st figure is your longitude minus 40. The 2nd figure is your longitude plus 40. The 3rd figure is your longitude plus 130. The 4th figure is your longitude plus 220. Use these figures if you only want orbits for your area. If you want all orbits for the day change line 180 to:
180 PRINT H;TAB 3;M,L

FROM:
WN7CSI
Kenneth Karki
W 9602 #10 Old Charles Rd.
Nine Mile Falls, Wa 99026

Dear Alex & Bo,

Enclosed are two programs for satellite orbits. One is for 1K and the other requires more than that, but it gives more specific information.

I work as a power plant operator (hydroelectric type). I have the ZX81 with 16K & am looking forward to the TS2000. I use mostly ICOM gear, 720A, 2KL, AT500, &211. Am active on 75M thru 10M & 2M. Working on Satellite WAS and am writing a program for WAS. As soon as the thing is working will send you a copy.

Had a problem with losing programs out of the computer that I thought was due to the 16K wobbling or something like that. Instead found the screw by the heatsink that holds the circuit board in place loose. Tightened it and no more problems.

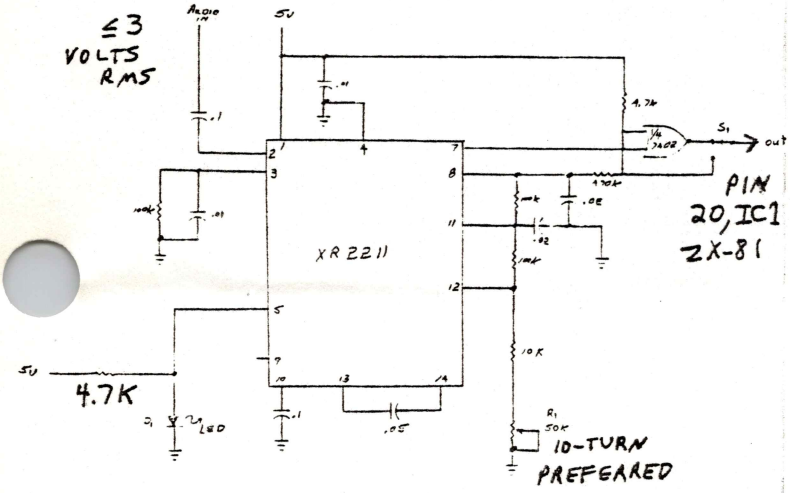
Also had a problem earlier with losing programs before I bought the 16K. Traced it down to the grounding strap making contact through the insulating material they provide to the circuit board. Put electrical tape on the board to provide a thicker barrier and no trouble since.

73'

Ken, WN7CSI

Simple RTTY TU Circuit
by
Dallas Williams,WAØMRG

This simple RTTY terminal unit provides a TTL output that can be connected directly to the ZX81. Shown is a two position switch to allow for 'inversion', but an additional position is recommended to keep it from messing up tape loading. The LED is used as a tuning indicator and works reasonably well on 170 Hz shift signals. It will go out when the PLL is locked on frequency. A scope should be used for tuning shifts greater than 425 Hz.



TTL RTTY INTERFACE FOR ZX81

WAØMRG/Ø

MUF Program
by
Bill Bosley, K3NN

Following is a ZX81 adaptation of the maximum usable frequency (MUF) program from Dec QST. Instructions: Enter CLEAR before saving a copy to tape, this saves loading time. Save program by GOTO 9990. It will then run automatically when loaded. See the QST article for details.

ZX81 RTTY Transmit/Receive Program & Interface
by
AF8J & WB8UJB

Here is a nice RTTY transmit and receive program with the required hardware interface. It 'shrank' well also, so it will start at the next convenient page.

Net Roster Program
by
Tom, W3YZW

Here's an updated and readable version of the program that appeared in the February 1983 issue. Another effort in our goal of a perfectly readable QZX. We found a copy machine that does OK on the blue listings and found that we can shrink 2:1 to save space and come up with a readable listing.

S A S
Size-Accuracy-Speed
by
Bo Barry, W4GHV

I did quite a bit of work polishing up and playing with the three sort routines presented in previous issues. There were several errors, of course, but they worked fine after I cleaned them up. Unfortunately, I haven't had time to get them loaded and printed (on Alex's printer) and this 'big issue' is wearing me out. So let's procrastinate and the results will be in the next issue. Response has been gratifying and we will hopefully use them as learning tools for you 'Novices'.

Editor's Doings

Here's a mish-mash (is that spelled rite?) of what I have been doing in between the sessions spent on my TRS8Ø preparing this newsletter. 1. The Votrax speech synthesizer circuit for the ZX/TS was completed and software development is underway. It uses the phoneme approach, having 61 and 3

```
 10 DIM A$(4)
 20 LET M$="JANFEBMARAPRMAYJUNJULAUGSEPOCTNOVDEC"
 30 LET C$="312831303130313130313031"
 40 LET R0=PI/180
 50 LET P1=2*PI
 60 LET R1=180/PI
 70 LET P0=PI/2
 80 LET F=0
 90 DIM W$(6)
 95 DIM Y$(6)
100 CLS
105 IF F THEN GOSUB 2000
110 PRINT ,,"COMPUTATION MONTH (1 TO 12)=";
115 INPUT M0
120 PRINT M0
125 IF M0)0 AND M0<13 THEN GOTO 150
130 PRINT "MUST BE BETWEEN 1 AND 12"
135 GOTO 110
150 LET CD=VAL C$(2*M0-1 TO 2*M0)
152 LET A$=M$(3*M0-2 TO 3*M0)
155 PRINT "COMPUTATION DAY (1 TO ";CD;")=";
160 INPUT D6
165 PRINT D6
170 IF D6)0 AND D6<=CD THEN GOTO 195
175 PRINT "MUST BE BETWEEN 1 AND ";CD
180 GOTO 155
195 IF F THEN GOTO 450
200 CLS
205 IF F THEN GOSUB 2000
210 PRINT ,,"TRANSMITTER LATITUDE=";
215 INPUT LT
220 PRINT LT
225 IF LT)=-90 AND LT<=90 THEN GOTO 250
230 PRINT "MUST BE BETWEEN -90 AND 90"
235 GOTO 210
250 PRINT "TRANSMITTER LONGITUDE=";
255 INPUT WT
260 PRINT WT
265 IF WT)=-360 AND WT<=360 THEN GOTO 280
270 PRINT "MUST BE BETWEEN -360 AND 360"
275 GOTO 250
280 LET W$=STR$ LT+" N"
282 IF SGN LT=-1 THEN LET W$=STR$ ABS LT+" S"
285 LET X$=","+STR$ WT+" W."
290 IF SGN WT=-1 THEN LET X$=","+STR$ ABS WT+" E."
295 IF F THEN GOTO 450
300 CLS
305 IF F THEN GOSUB 2000
310 PRINT ,,"RECEIVER LATITUDE=";
315 INPUT LR
320 PRINT LR
325 IF LR)=-90 AND LR<=90 THEN GOTO 350
330 PRINT "MUST BE BETWEEN -90 AND 90"
335 GOTO 310
350 PRINT "RECEIVER LONGITUDE=";
355 INPUT WR
360 PRINT WR
365 IF WR)=-360 AND WR<=360 THEN GOTO 380
370 PRINT "MUST BE BETWEEN -360 AND 360"
375 GOTO 350
380 LET Y$=STR$ LR+" N"
382 IF SGN LR=-1 THEN LET Y$=STR$ ABS LR+" S"
385 LET Z$=","+STR$ WR+" W."
390 IF SGN WR=-1 THEN LET Z$=","+STR$ ABS WR+" E."
395 IF F THEN GOTO 450
```

```
400 CLS
405 IF F THEN GOSUB 2000
410 PRINT ,,"SUNSPOT NUMBER=";
415 INPUT S9
420 PRINT S9
425 IF S9)=0 AND S9<=400 THEN GOTO 445
430 PRINT "MUST BE BETWEEN 0 AND 400"
435 GOTO 410
445 LET F=1
450 CLS
455 GOSUB 2000
460 PRINT ,,,,,,,,"PRESS NUMBER KEY CORRESPONDING  TO THE ITEM YOU WANT TO CHAN
GE"
465 PRINT ,,"  1) CHANGE ALL DATA","  2) CHANGE DATE",,"  3) CHANGE TRANSMITTER PO
SITION"
470 PRINT "  4) CHANGE RECEIVER POSITION","  5) CHANGE SUNSPOT NUMBER","  6) >>>>>
NO CHANGE <<<<<"
475 PAUSE 33333
480 LET I$=INKEY$
485 IF I$<"1" OR I$)"6" THEN GOTO 475
490 GOTO 100*(VAL I$-1)
500 CLS
510 GOSUB 2000
580 PRINT "HOUR  MUF(MHZ)  HOUR  MUF(MHZ)","----  --------  ----  --------"

600 LET L1=LT*R0
610 LET W1=WT*R0
620 LET L2=LR*R0
630 LET W2=WR*R0
635 LET DF=7
640 FOR I=0 TO 23
650 GOSUB 1000
652 IF I<>12 THEN GOTO 660
655 LET DF=23
657 PRINT AT 7,3;"Z",
660 PRINT " ";I;TAB DF;INT (J9*10+.5)/10,,
670 NEXT I
680 PRINT AT 21,0;"  PRESS ""P"" TO PRINT DATA OR "
690 LET L=USR 2591
700 PRINT "  PRESS (ENTER) FOR NEXT CASE"
710 PAUSE 33333
720 LET I$=INKEY$
730 IF I$=CHR$ 118 THEN GOTO 450
740 IF I$<>"P" THEN GOTO 710
750 PRINT AT 21,0;"
760 LET L=USR 2591
770 COPY
780 GOTO 680
1010 LET K7=SIN L1*SIN L2+COS L1*COS L2*COS (W2-W1)
1020 IF K7)=-1 THEN GOTO 1050
1030 LET K7=-1
1040 GOTO 1070
1050 IF K7<=1 THEN GOTO 1070
1060 LET K7=1
1070 LET G1=ACS K7
1080 LET K6=1.59*G1
1090 IF K6)=1 THEN GOTO 1110
1100 LET K6=1
1110 LET K5=1/K6
1120 LET J9=100
1130 FOR K=1/(2*K6) TO 1-1/(2*K6) STEP 0.9999-1/K6
1140 IF K5=1 THEN GOTO 1160
1150 LET K5=.5
1160 LET P=SIN L2
1170 LET Q=COS L2
```

```
1180 LET A=(SIN L1-P*COS G1)/(Q*SIN G1)
1190 LET B=G1*K
1200 LET C=P*COS B+Q*SIN B*A
1210 LET D=(COS B-C*P)/(Q*SQR (1-C*C))
1220 IF D)=-1 THEN GOTO 1250
1230 LET D=-1
1240 GOTO 1270
1250 IF D(=1 THEN GOTO 1270
1260 LET D=1
1270 LET D=ACS D
1280 LET W0=W2+SGN (SIN (W1-W2))*D
1290 IF W0)=0 THEN GOTO 1310
1300 LET W0=W0+P1
1310 IF W0(P1 THEN GOTO 1330
1320 LET W0=W0-P1
1330 IF C)=-1 THEN GOTO 1360
1340 LET C=-1
1350 GOTO 1380
1360 IF C(=1 THEN GOTO 1380
1370 LET C=1
1380 LET L0=P0-ACS C
1390 LET Y1=.0172*(10+(M0-1)*30.4+D6)
1400 LET Y2=.409*COS Y1
1410 LET K0=3.82*W0+12+.13*(SIN Y1+1.2*SIN (2*Y1))
1420 LET K0=K0-12*(1+SGN (K0-24))*SGN (ABS (K0-24))
1430 IF COS (L0+Y2))-.26 THEN GOTO 1520
1440 LET K9=0
1450 LET G0=0
1460 LET M9=2.5*G1*K5
1470 IF M9(=P0 THEN GOTO 1490
1480 LET M9=P0
1490 LET M9=SIN M9
1500 LET M9=1+2.5*M9*SQR M9
1510 GOTO 1770
1520 LET K9=(-0.26+SIN Y2*SIN L0)/(COS Y2*COS L0+1.0E-3)
1530 LET K9=12-ATN (K9/SQR (ABS (1-K9*K9)))*7.639437
1540 LET T=K0-K9/2+12*(1-SGN (K0-K9/2))*SGN (ABS (K0-K9/2))
1550 LET T4=K0+K9/2-12*(1+SGN (K0+K9/2-24))*SGN (ABS (K0+K9/2-24))

1560 LET C0=ABS (COS (L0+Y2))
1570 LET T9=9.7*C0**9.6
1580 IF T9).1 THEN GOTO 1600
1590 LET T9=.1
1600 LET M9=2.5*G1*K5
1610 IF M9(=P0 THEN GOTO 1630
1620 LET M9=P0
1630 LET M9=SIN M9
1640 LET M9=1+2.5*M9*SQR M9
1650 IF T4(T THEN GOTO 1680
1660 IF (1-T)*(T4-I))0 THEN GOTO 1690
1670 GOTO 1820
1680 IF (1-T4)*(T-I))0 THEN GOTO 1820
1690 LET T6=I+12*(1+SGN (T-I))*SGN (ABS (T-I))
1700 LET G9=P1*(T6-T)/K9
1710 LET G8=P1*T9/K9
1720 LET U=(T-T6)/T9
1730 LET G0=C0*(SIN G9+G8*(EXP U-COS G9))/(1+G8*G8)
1740 LET G7=C0*(G8*(EXP (-K9/T9)+1))*EXP ((K9-24)/2)/(1-G8*G8)
1750 IF G0)=G7 THEN GOTO 1770
1760 LET G0=G7
1770 LET G2=(1+S9/250)*M9*SQR (4+58*SQR G0)
1780 LET G2=G2*(1-.1*EXP ((K9-24)/3))
1790 LET G2=G2*(1+(1-SGN L1*SGN L2)*.1)
1800 LET G2=G2*(1-.1*(1+SGN (ABS (SIN L0)-COS L0)))
1810 GOTO 1880
```

```
1820 LET T6=I+12*(1+SGN (T4-I))*SGN (ABS (T4-I))
1830 LET G8=PI*T9/K9
1840 LET U=(T4-T6)/2
1850 LET U1=-K9/T9
1860 LET G0=C0*(G8*(EXP U1+1))*EXP U/(1+G8*G8)
1870 GOTO 1770
1880 IF G2)J9 THEN GOTO 1900
1890 LET J9=G2
1900 NEXT K
1910 RETURN
1999 REM  display parameters
2000 PRINT A$;D6
2010 PRINT "TRANSMITTER AT ",W$;X$
2020 PRINT "RECEIVER    AT ",Y$;Z$
2030 PRINT "SUNSPOT NUMBER=",S9,,,
2040 RETURN
9990 SAVE "MUF"
9991 PRINT AT 8,11;"BOSLEYS";AT 11,11;"BASEMENT";AT 14,9;"LABORATORIES"

9992 PAUSE 250
9993 CLS
9994 PRINT AT 9,9;"************",TAB 9;"*          *",TAB 9;"* MINI MUF *";TAB 9
;"*          *";TAB 9;"************"
9995 PAUSE 250
9999 RUN
```

MUF Driver & TS1000 adaption by K3NN

MUF

WHAT ARE YOU WAITING FOR?

INTRODUCING

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A SOFTWARE BASED CASSETTE TAPE STORAGE SYSTEM FOR
16K ZX81 AND TS1000 COMPUTERS

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- **FAST BINARY DATA** loading and saving anywhere in RAM
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All files are error checked, and load and save FAST. Typically, an 8K file will load/save in less than 30 sec.! So we ask you again...what are you waiting for?

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PROGRAM LISTING FOR RTTY -I

```
1    REM  -  405 Spaces  -
2    PAUSE 20
3    RAND USR  16578
4    CLS
5    RAND USR  16724
6    CLS
7    PAUSE 40
8    GOTO 3
```

NOTE: The next 7 lines are typed into program just to load the machine code into the computer. After the machine code is loaded they are deleted. Next you should "save" the program on cassette then run.

```
9    FAST
10   FOR X=16514 TO 16917
11   INPUT N
12   POKE X,N
13   PRINT PEEK X;" ";
14   NEXT X
15   SLOW
```

TO START ENTERING MACHINE CODE, TYPE: GOTO 9 THEN ENTER THE FOLLOWING TABLE:

(left to right, no spaces !)

```
0   42  0   38  0   56  46  58  0   41
55  47  51  43  40  48  57  63  49  60
45  62  53  54  52  39  44  0   50  61
59  0   0   31  0   22  0   0   36  35
0   13  32  25  26  0   14  16  33  11
17  30  0   34  28  29  37  15  0   0
27  24  0   0   62  0   211 4   205 187
2   62  255 189 40  1   201 219 1   203
71  40  241 203 79  32  237 211 2   219
0   254 0   40  229 254 4   32  6   33
0   0   34  18  65  254 31  32  8   33
0   0   34  18  65  24  207 254 27  32
8   33  32  0   34  18  65  24  195 33
18  65  134 95  22  0   33  130 64  25
126 215 24  180 0   0   4   0   0   0
0   0   0   0   0   0   0   49  0   41
46  57  47  50  0   0   0   0   35  0
61  43  44  60  54  55  51  33  42  48
53  39  38  56  3   25  14  9   1   13
26  20  6   11  15  18  28  12  24  22
```



```
23  10  5   16  7   30  19  29  21  17
30  0   211 4   219 1   203 87  40  250
213 205 187 2   62  255 189 32  248 205
187 2   62  255 189 40  248 68  77  62
0   205 189 7   126 209 215 254 20  32
1   201 28  245 123 254 72  32  3   205
249 65  241 254 38  242 161 65  254 0
40  15  33  18  66  245 126 254 0   241
40  18  205 211 65  24  13  33  18  66
245 126 254 4   241 40  3   205 230 65
254 118 32  9   62  8   211 3   30  0
195 88  65  254 18  32  7   62  2   211
3   195 88  65  33  20  65  6   0   79
9   126 211 3   195 88  65  245 62  27
211 3   219 1   203 87  40  250 241 33
0   0   34  18  66  201 245 62  31  211
3   219 1   203 87  40  250 241 33  4
0   34  18  66  201 245 62  8   211 3
219 1   203 87  40  250 62  2   211 3
219 1   203 87  40  250 241 30  0   201
4   0   31  32
```

You will run out of screen little more then half way through. Be careful to watch for this, when it occurs, enter CONT. Then just continue entering the program.

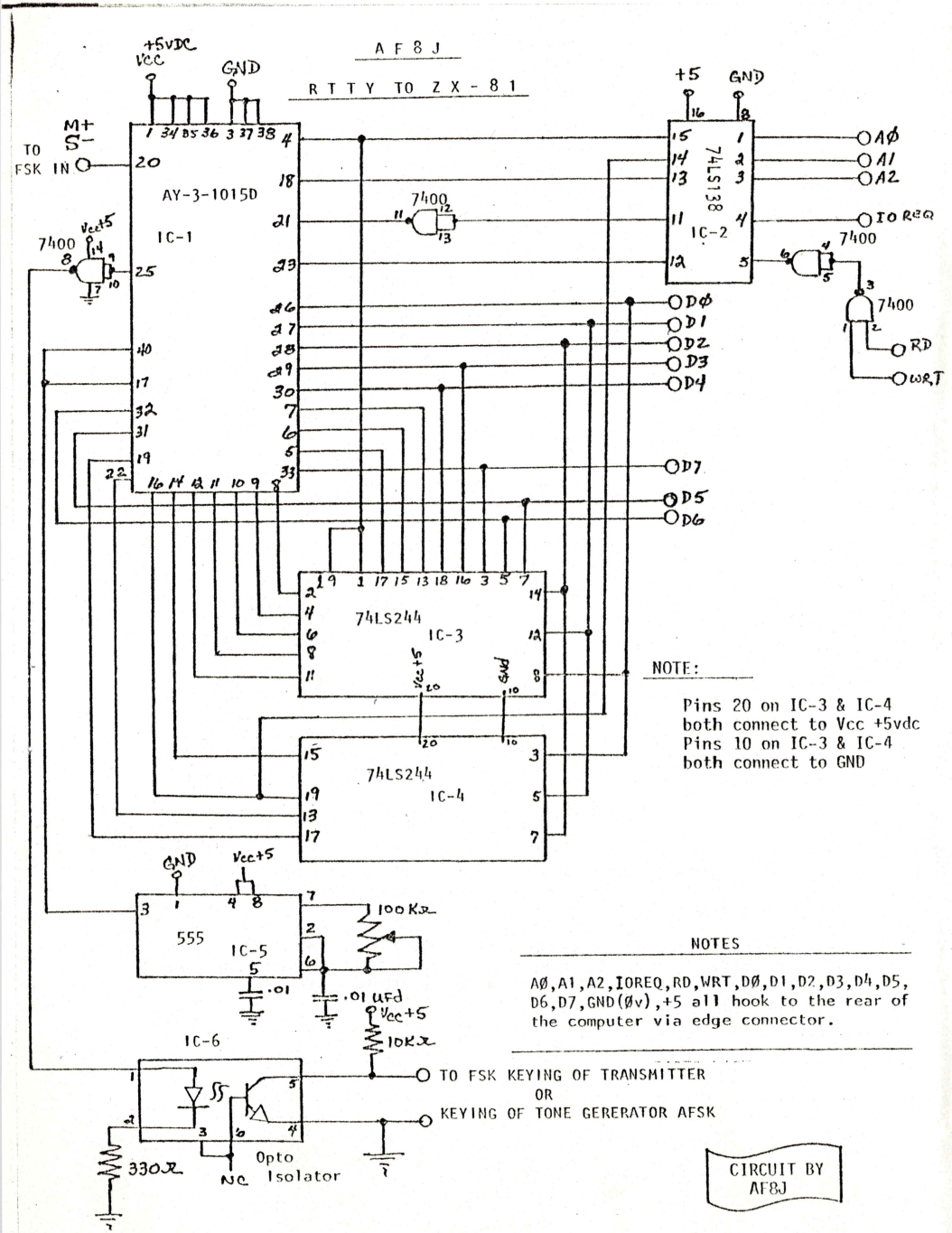
After lines 9 thru 15 have been deleted the following can be put in at the programmers descretion. It will provide for automatic start after loading.

```
9      SAVE "RTTY"
10     GOTO 8
```

The "Y" will turn to an inverted "Y" in RTTY after the first RUN. This is normal.

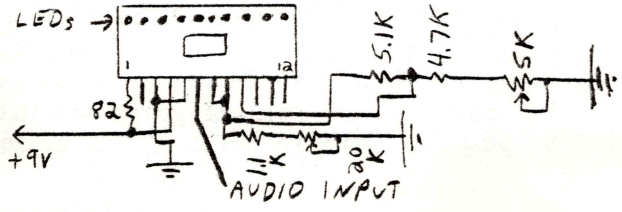
When typing into the program (or transmitting) the program will automatically go to basic if the screen fills up. This is a problem with the program, any suggestions anyone ?

If you make an error in typing when entering the machine code.The only way to correct that error is after the machine code has been completed, find the address that the error is at and poke the correct number to that address.




```
  1 REM "NET"

 10 DIM L(1)

 15 DIM S$(1,8)

 20 DIM R$(100,
30)
 25 LET L=0

 30 LET N=0

 35 GOTO 5000

 38 CLS

 40 LET CHANGE=
500
 42 LET ENTER=1
000
 44 LET LIST=15
00
 46 LET SEARCH=
2000
 47 LET N=L

 49 CLS

 50 PRINT AT 0,
10;"■ENU■"
 52 PRINT

 54 PRINT TAB 5
;"ENTER ■■ FOR
CHANGE MODE"

 55 PRINT

 56 PRINT TAB 5
;"ENTER ■■ FOR
ENTRY MODE"

 57 PRINT

 59 PRINT TAB 5
;"ENTER ■■ FOR
LIST MODE ";L

 60 PRINT

 61 PRINT TAB 5
;"ENTER ■■ FOR
SEARCH MODE"

 62 PRINT

 63 PRINT TAB 5
;"ENTER ■TOP W
HEN DONE"

 65 INPUT A$

 67 IF A$="C" T
HEN GOTO CHANGE
 68 IF A$="E" T
HEN GOTO ENTER
 69 IF A$="L" T
HEN GOTO LIST
 70 IF A$="S" T
HEN GOTO SEARCH
 71 IF A$="STOP
" THEN STOP
 75 GOTO 49

 500 CLS

 510 PRINT AT 0,
12:"■HANGE MODE
■"

 512 PRINT

 514 PRINT TAB 5
;"ENTER ROSTER N
UMBER"

 515 PRINT TAB 5
;"TO BE CHANGED:
"

 516 INPUT C

 518 PRINT

 520 PRINT TAB 5
;"ENTER CALL CHA
NGE:"

 525 INPUT C$

 527 PRINT

 530 LET R$(C,1
TO 8)=C$
 535 PRINT TAB 5
;"ENTER NAME CHA
NGE:"

 540 INPUT N$

 542 PRINT

 545 LET R$(C,9
TO 16)=N$
 550 PRINT TAB 5
;"ENTER 0TH CHAN
GE:"

 555 INPUT G$

 560 LET R$(C,17
TO 30)=G$
 570 GOTO 49

1000 CLS

1010 FOR X=N+1 T
O 100
1015 IF X=100 TH
EN GOTO 1142
1020 LET L=X

1030 CLS

1040 PRINT AT 0,
12:"■NTRY■"
1050 PRINT AT 2,
12;"LAST ENTRY W
AS: ";X-1

1052 PRINT

1055 PRINT "ENTE
R CALL SIGN:"
1060 INPUT C$

1065 LET R$(X,1
TO 8)=C$
1070 PRINT

1075 PRINT "ENTE
R NAME:"
1080 INPUT N$

1085 LET R$(X,9
TO 16)=N$
1090 PRINT

1095 PRINT "ENTE
R 0TH:"
1104 INPUT 0$

1105 LET R$(X,17
 TO 30)=0$
1110 PRINT

1111 PRINT TAB 5
;"■OSTER■HANGE
■■"

1112 PRINT

1113 PRINT

1115 PRINT "ANOT
HER ENTRY?"
1120 PRINT

1125 PRINT "ENTE
R ■■■■"
1130 INPUT A$

1138 IF A$<>"Y"
THEN GOTO 47
1140 NEXT X

1147 PAUSE 200

1150 CLS

1500 CLS

1505 PRINT AT 20
,12:"■■S■■TODE■■
"

1510 FOR V=1 TO
L
1515 SCROLL

1520 PRINT R$(V,
1 TO 30);V
1525 NEXT V

1540 PAUSE 200

1550 GOTO 47

2000 CLS

2030 PRINT AT 0,
12:"■EARCH MODE
■"

2040 PRINT

2050 PRINT TAB 5
;"ENTER CALL TO
BE SEARCHED:"

2055 PRINT

2060 INPUT S$(1,
1 TO 8)
2062 FAST

2063 FOR S=1 TO
L
2065 IF R$(S,1 T
O 8)=S$(1,1 TO 8
) THEN GOTO 2140

2070 NEXT S

2100 PRINT

2110 PRINT TAB 5
;S$(1,1 TO 8);"
NOT FOUND"

2115 PAUSE 200

2117 SLOW

2120 GOTO 47

2140 PRINT R$(S,
1 TO 30);S
2142 SLOW

2145 PAUSE 200

2150 GOTO 47

5000 PRINT AT 10
,0;"************
****************
****"
5005 PRINT TAB 5
;"■■■■■■■■■■■■■
■■■■■■■■■■"

5010 PRINT "****
****************
************"

5013 PAUSE 200

5015 GOTO 38
```

pauses. Additional features include an adjustable frequency which alters both the speed in which the words are said and the overall pitch. It has provisions for 4 programmable levels of inflection which greatly enhance the intelligibility. The chip lists for $50 from most places but I have seen it for under $40 from one source. A few more dollars worth of parts are all it takes. Schematic and info next month. 2. The National Digitalker speech synthesizer is also working. It takes a few chips plus the chip set (on sale from Jameco for $34.95). The normal price is $85. It has a vocabulary of 143 words and they come out sounding as natural as can be. The student is already learning how to take portions of the words and build new words. Schematic and info next month. 3. The LM XXXXX project was really a NSM 3916ø Dot/Bar Display Driver with LEDs. I put it, the ZX transformer, a 4700uF cap, a power switch & LED, and a motor on/off switch for my recorder into one of Radio Shack's cheap project boxes. A record/play switch was also included to isolate the unused line during each operation. I have found the display pretty helpful in setting up volume levels. Following is the schematic I came up with, more details later. I unfortunately have spent a lot of time getting the recorder head alignment figured out. I thought it primarily adjusted the high-freq playback, but I am finding that I have to adjust it for different tapes from different sources. I would sure welcome some tape loading 'Bits & Bytes' from those who have figured out this mess. What's the difference in LOAD "" and LOAD "name" as far as ease of loading goes? 4. Just received for review (see ad) is Z-XLR8 software. I have tried it briefly and think it is the answer to my long coffee breaks! 16K programs that used to take over 5 minutes to load are ready to go in 45-60 seconds. I love it already. Details next month.



Unclassified

WANTED: Unclassified ads for publication in QZX. Cost is 1 cent for each keystroke (characters, blanks, etc). Payment must be included with order. This is an excellent way to sell your unwanted equipment, ask for help, find a specific program, etc. Send your ad in with payment to QZX, 2025 O' Donnell, Las Cruces, N.M. 88001.

FOR-SALE: FOURIER Analysis & Synthesis. User defined resolution, number of harmonics, full data review, graphing facilities, written for ZX81 but easily converted to ZX80 (no multi-dim arrays). Listing and full docs $12.00 ppd. Mention QZX and get the $5 cassette free. SYNCWARE Co., POB 5177, El Monte, Ca 91734.

****

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SL-6: Touch-initiated one-second SHIFT lock speeds programming, lights LED to avoid errors, allows one-finger entries. $17.46

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Prompt delivery, full support, no quibble guarantee, SASE for data. NYS add sales tax, foreign add 2 oz postage each. First Class PPD USA.

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FOR-SALE: SWR Program- enter up to 10 frequencies and power readings. Calculates and plots SWR on a bar graph. 8K/16K. Cassette $6.00 + $1.50 S&H. Listing only - $2.00. Send to K5MIL, 2905 Prescott, Garland, Tx. 75041.

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George W. Miller, N3CJP, RD2 Box 132A, Mechanicsburg, Pa. 17055

Products in Review

This column will provide reviews of hardware 'add-ons', software, and books that are available for the Sinclair computers. Again, we will do reviews as our budget allows, or as they are loaned/donated by vendors for review. Reviews done by our subscribers will also be welcomed.

The first review is about a Parrot. Not the bird version but a 'black box' that allows the ZX/TS to sound like a parrot. The ad for this device appeared in last month's issue (and this month's too) and we were able to borrow one for a month to evaluate it. Being an avid speech synthesis student & instructor I couldn't turn down the chance to try it. The Parrot, offered by RIST, Inc. is a permanently sealed module that interfaces to the ZX80/ZX81/TS1000. It requires an external speaker, has a volume control, reset switch, and a jack for providing an optional external power supply in the event your computer supply is already taxed. My ZX81 supply, to which I have added 4700uF additional capacitance, remained at 9vdc (with 1v pk-pk ripple) with the Parrot and my Byte Back 64K memory attached.

Inside the Parrot is the General Instruments SP0256 speech synthesizer IC. A few details on this chip were given in a Radio-Electronics mag (Mar 83) review of the Voicetech Industries (now RIST) speech synthesizer semi-kit. If you are interested in interfacing to an Apple or TRS80 or 'doing it yourself', you should contact them for info on their economical semi-kits. This chip uses one of the two most popular techniques of producing speech, that of phoneme/allophone creation. I could write pages, throwing fricatives, silibants, and even a few vowels at you to explain what I know about this, and I'm no expert by any means. If you have more than a casual interest feel free to contact me and I will gladly share my findings. Speech synthesis is a rapidly growing field with the 'invention' of a series of fairly economical ICs that do most of the work. Finding good educational literature on the subject is still difficult and I'm constantly collecting articles and learning more each day.

The Parrot is basically an electrical model of the vocal tract and can create 59 discrete sounds and 5 pauses. By combining these sounds we can generate words, phrases, and even sound effects. Let me warn you, however; no matter how hard you try, the speech is going to sound 'computer - generated'. That's the price we have to pay for reduced memory storage requirements. In exchange, for this type of synthesis, we get an unlimited vocabulary. The intelligibility overall and of the difficult words varies quite a bit from one listener to another. Kinda like a non-ham listening to SSB for the first time. Or a 'normal' person listening to the CB lingo. It takes getting used to and is then perfectly clear. Some have no problems at all understanding it.

The Parrot comes with software (on tape) that allows you to create, edit, and listen to the words that you create with the 64 allophones. To use the Parrot with your own programs, you simply include a small 'driver' program, and a table containing the allophones you have created. Again, the Parrot has no vocabulary as such, you must create and store the words. The creation/editing program is quite nifty, allowing movement of the cursor to insert, change, or delete allophones. To say HELLO, we use the allophones HH1, EH, EH, LL, OW and the software converts these to the required decimal numbers to poke into the machine language routine. Experimentation with repetition of the allophones and insertion of pauses for clarity is used to refine the speech sounds. Watch out for a strange sounding 'CQ Field Day from W4GHV' someday.

As for documentation, the Parrot provides a nice booklet half-size pages. Hardware description is 2 pages, software is 10 pages, allophone/word creation is 9 pages, and 9 pages on theory and

prinicples of speech synthesis. This booklet is informative and easy to follow.

The technique of entering TEXT and having the synthesizer come up with the correct phonemes and speak correctly is challenging. Look for future RIST offerings. I have a long BASIC program for the TRS80 that works pretty well, but needs polishing, shrinking and compiling.

In summary, I found the Parrot interesting to work with and was pleased with its perfomance.

QZX Friends

Here's your chance to let your ambitions and accomplishments be known. Feel free to let us know what you are up to, and to contact those 'doing your thing'.

WD5GWC - Terry found a TS1000 for less than $65, and bought the 16K RAM pack, and is looking for RTTY software (keep tuned to QZX).

VE6CBN - Bob wrote a nice letter. He is a retired pilot (from the Royal Netherlands Air Force). He also changed some of the Canadian money we have been sent to a form the US post office will accept for stamps.

KA9ART - Bob bought his TS1000 with 16K to use with the AMSAT Oscar satellites.

N3CJP - George has written aritcles for computer mags and is offering some of his ZX81 programs in the unclassified ads. He says that he is another satisfied user of the NU4V CWSS program.

WDX9JFT - Mike is an avid SWL. He says that he has quite a few games for the TS1000 that he is willing to exchange with people. His address: Mike Witkowski, 4206 Nebel St., Stevens Point, Wisc.,54481.

WB5LWS - Stephen has had his TS1000 for a month. He said he got good results with the composite monitor circuit in Jan 83 QZX. He likes the reverse video on his 9" BW monitor. He is working on an OSCAR prediction program, and has a nice version already for his TRS80.

W8JLE - Bob spends a lot of time in his Argosy Trailer. He has built in a super computing setup along with his ham gear. He has a ZX81 with 64K and an interface to the MX80 printer. He also has a TRS80 and is working on AMSAT programs.

WB4FXD - Jerry got a new TS1000 for XMAS and says that its lots of fun (Roger that..Ed) He may send us a program which will draw schematics (Please do!..Ed).

WB6MSC - Chris has translated and made more user friendly the MINIMUF program from Dec QST. He is selling it for $8. For more details write him, include SASE.

K2MI - Remember him! Marty has a new edition of DA1 (see his previous ads). He also still has some complete sets of the previous edition of QZX. He has no listings of his large character scrolling program which appeared in a hard to read form in the previous issue; however he will send a tape containg both the horiz and vert program for $6.

WB4TDB - Vollie found that the TS1000 RTTY signal of AA8V on 3609 kHz was as good as any signal on the band.

W2GVE - Bob has a ZX81, printer, Sampo TV and uses the NU4V cw program. He sent us a couple of Bits & Bytes this month.

QZX Net Info

Tired of looking thru back issues for net times and frequencies? Maybe this new format will help. Watch out for the Zulu - wrong night confusion. I suppose they will all shift one hour when DST starts.

Freq.	Time	Day	Source	Location
7.240	1500Z	Sun	KQ2F	East coast
146.07	0030Z	Tue	K5XY	Manhattan,NY
146.28	0000Z	Tue	N3ADF	Wash, DC
146.16	0000Z	Thu	N1CB	Vermont/NH
3.980	2300Z	Fri	N3CJP	East coast
14.345	0100Z	Thu	NU4V	USA
14.329	2000Z	Sun	W9CQD	USA
7.245	0100Z	Wed	W9CQD	USA
7.235	1800Z	Sat	W6AMW	West coast
7.228	1700Z	Sat	K4KEP	East coast
7.228	1700Z	Sun	K4KEP	East coast
146.04	0100Z	Thu	KB3YT	Pittsburgh

From Russ, W9CQD

The Sunday net has had moderate success the last few weeks with WA6DLI & NU4V acting as NCS. By following the Apple net we have inherited a reasonably clear

frequency. The newly formed 40 meter net is enjoying success with Dale, WB9NRK acting as NCS. We now have about a half dozen Sinclair nets running on the low bands. The April issue of QST lists some of the others in its ON LINE column. So, try to join us on some of these nets, there is all sorts of help available on the air on these nets. For the latest happening in the Timex/Sinclair world tune into the QZX Nets 73, W9CQD

Bits & Bytes

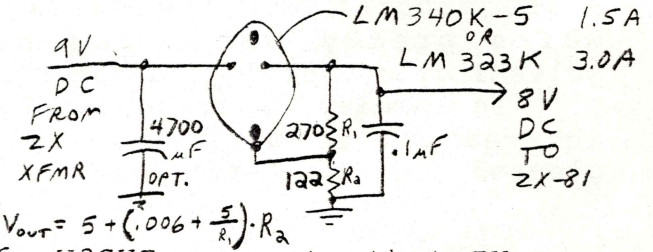
This column will try to track and document the quirks, fixes, and unique modifications done to the Sinclair computers. We finally received a suggested name for this column from Vollie Miller, WB4TDB to whom we are grateful. Let's hear from you.

Here's what we have this month:

13. The $19.95 Jameco keyboard can be stuffed into their DTE-14 case along with the ZX81, CWSS interface, etc according to Stew - KD5D. He recommends lining the plastic side panels with foil to reduce radiated interference. Also, avoid purchase of surplus keyboards that do not have 'isolated' normal switch closures. Stew also submitted an idea for getting the shifted keys with a single keystroke, maybe we will be able to try it and report next month.

14. Without printer but with 35mm camera? Bob - WA6DLI sent us some nice photos of a program listing shot from his video monitor. Also received were photos of a typical CWSS QSO display and of his nice ham shack. Camera settings: position about 2 feet from TV, expose 1/30 sec at f4.0 for ASA400, f2.8 for ASA200, or f2.0 for ASA100. If you are not into developing and printing yourself, don't send them out for finishing, I don't think it would be cost effective that way!

15. Worried about power supply problems? An external 12.6VAC transformer, bridge rectifier, filter cap, and a 7805 1.5A regulator IC should work well. Use the following circuit to get a solid 8 VDC input to feed into the ZX81 and the ZX81's regulator should run cooler. Note that the 'case' of the regulator chip is 'hot', so insulate it from ground. DO NOT use diodes to get desired voltage drops with t voltage regulator IC's. Sever manufacturers have warned possible problems using this scheme. The one drawn below is recommended.



16. W2GVE suggests that TV screen layout for graphics can be made easier if you run a strip of magic tape down the left and across the bottom of the 'tube'. Fill the screen with characters and then mark lines.

17. Some have complained of Gladstone's extremely slow service. Their latest catalog indicated that they have indeed been swamped with orders and have added lots of staff to keep up with the orders.

18. RAM wobble problems? collection of tricks tried.. velc strips, rubber bands, C clamp tape, erasers wedged between computer and memory pack, plastic protector shields, and the list goes on. I think the ribbon cable extension cable is the most practical, however. If your machine dies and a 'wobble' is not suspected as the cause, a check for oxidation or dust on the edge connector would be a good idea.

Miscellaneous Comments

By the way, all of you that have sent us programs, input, and tapes have not been forgotten. We are still working on an equitable way to repay you for your efforts, efforts that are making QZX better every time.

March 83 RTTY Receive Program Corrections & Refinements:

Line changes: 5 DIM A$(2600) ;110 I Z=0 OR Z=32 THEN GOTO 100 ;150 L A$(N)=CHR$(PEEK(16568+Z+J)) ;1 GOTO 100 ;190 GOTO 100 ;210 LET B=1 ;240 PRINT A$(N) ;270 IF B=704 THEN CLS ;280 IF B=704 THEN LET B=1

Add lines: 115 IF Z=2 OR Z=34 THEN GOTO 100 ;155 NEXT N ;157 GOTO 200 Delete lines: 220, 250. These changes help to speed up the read out to a comfortable reading speed and also keeps carriage returns & line feeds from being printed as spaces. To copy 50 baud BAUDOT, change the machine language timing loop by a POKE 16539,227. If interested in a program for copying 110 baud ASCII please send a SASE - WA0MRQ.

KQ2F, Bob O'Leary, 21 Kate Terrace, Piscataway, NJ 08854 is offering the following program listings 'free'. Send a SASE for each one desired, with extra stamps inside, to defray copying costs, if desired.
1. MUSIC - produce tones at MIC port - machine language. 2. RTTY RCV - experimental BASIC, with interface diagram. 3. RTTY XMT - from Dec '82 QEX (ARRL pub) & interface diagram. 4. ROSTER - in this issue. 5. A008 Dupe contest logging. 6. A010 Compute great circle distance. 7. A011 Morse code generator. 8. A013 log keeping & interval timer. 9. A016 misc progs - quad ant. constr., space saving tips, resistor color codes. 10. A009 ten minute timer. 11. A012 Morse receive. 12. A020 Morse receive. 13. A014 RTTY XMT (4k ROM). 14. A015 RTTY RCV (4k ROM). 15. A021 misc progs - generate large REM statements, calculate standard resistances. 16. A017 station log. 17. A019 send BASIC programs via CW. 18. Direct video mods. 19. Schematics of ZX81, 16K RAM & power supply.

'Keep them articles comin', we appreciate the excellent support. Be sure to put you name or call on EVERYTHING. You won't believe my bookkeeping techniques. How about an article on a simple printer or floppy disk interface design?

One last request.. If you manage to scrape up enough $$ to buy from the QZX advertisers, BE SURE (or PLEASE) mention QZX. If you have objections to us doing reviews of products advertised in QZX let us know. We intend to present objective comments on them. If an item advertised in QZX is obtained for review and found to be less than 'OK' in our opinion we will simply decline to print that review. A rather polite way of avoiding a 'cut throat'. Those not advertised but reviewed will receive our honest opinions and will be printed.

73, W4GHV and K5XY

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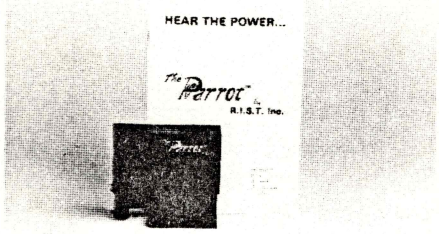

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